PLATE VII.

The figures illustrate the ossicone of the right side of Major Powell Cotton's male Okapi.

Fig. 1. The specimen of the natural size, seen from the right.
2. The base of the ossicone, held by soft tissue to a similarly madrepore-like surface of the frontal bone. Natural size.
3. Surface of the horn-tip, left side, enlarged to twice the natural size to show the absence of polishing and of transverse fissures. The ossicone was completely covered by integument; it had not been "cut" or emerged.
4. Similar view of the right side.
5. Similar view of the horn-tip from in front.
6. Similar view from behind.
7. The horn-tip has been sawn through so as to remove the right-hand moiety of the tip. The extremely dense, ivory-like character of the bone of this region is thus demonstrated, and the absence of horizontal or other penetrating fissures (compare and contrast with the text-figures, especially text-fig. 52).

4. Description of *Hyla resinifictrix* Goeldi, a new Amazonian Tree-Frog peculiar for its Breeding-habits. By Prof. Dr. EMIL A. GOELDI, C.M.Z.S., Director of the Pará Museum.

[Received January 21, 1907.]

(Text-figures 56–59.)

In its warty skin this remarkably fine Tree-Frog resembles *Hyla tuberculosa* Günther, *Hyla taurina* Steindachner, and *Hyla venulosa* Laur. It is most closely related to the last.

Length of a male, 8 cm. from snout to vent.

Head semicircular. Space between the two nostrils slightly concave. Nasal region descending abruptly to the border of the mouth, almost at right angles to the frontal plane. Canthus rostralis running in a curve, rounded off. Nostrils, seen from above, forming slight prominences. Choanæ large. Vomerine teeth in two rows, forming an angle pointing forwards. Tongue heart-shaped.

Tympanum very distinct, moderate sized, rather smaller than the eye. In the male distinctly prominent vocal sacs between the rictus of the mouth and the insertion of fore-legs.

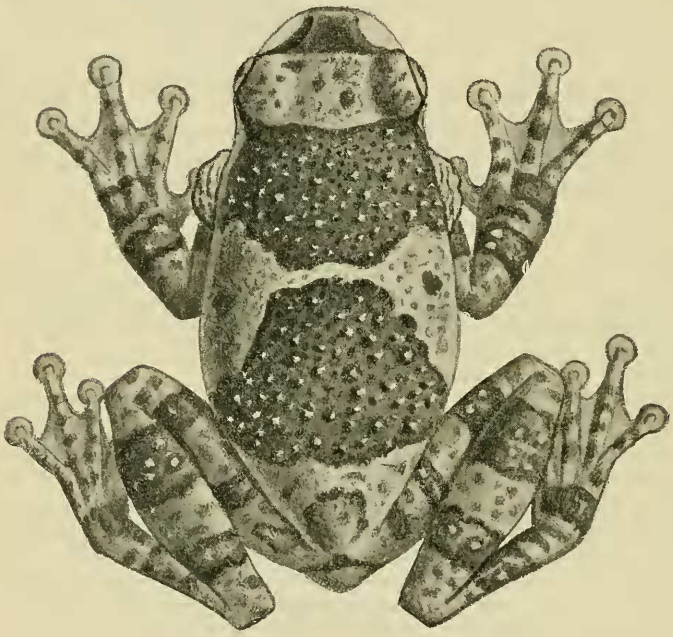
Fingers III, IV, and V connected about half their length by a web; no perceptible rudiment of thumb. Finger-disks large, a little smaller than the tympanum. Outer border of arms without folds of the skin. When the hind legs are stretched forward, the tibio-tarsal articulation reaches the eye or the border of the mouth. Heels without appendage.

Tubercles of sole of foot not so prominent as in *Hyla taurina*.

Colour greenish-yellow with blackish-brown markings: a brown trapeze-shaped field between nose and anterior border of eyes; a light-coloured, broad band running from one eye to the other, the width of the eye, anterior bordering line straight, posterior line slightly curved backwards; a large dark field covering all the dorsal region, laterally running down to the insertion of the fore

legs, posteriorly leaving in the sacral region a triangular light-coloured space. Between the insertion of the hind legs, situated in the median line, there may be a small dark ring with a central dark point (text-fig. 57 A). Dorsal area either entire or laterally constricted about the middle (as in a fourth specimen not figured), or divided in two isolated parts by a light-coloured cross-band (text-figs. 56 and 57 B). The dark dorsal blotches are thickly studded with thorn-like elevations (pointed warts) with a light-coloured apex (text-fig. 56), more thickly agglomerated in the

Text-fig. 56.



Hyla resinifictrix, male (nat. size).

parotoid region (left side 13, right side 22, in one individual, and also in the posterior part 22+24 in one individual), besides an abundance of smaller elevations and diminutive granulations. A brown band around the upper arm, another around the fore-arm, very well pronounced (with some lightish spots, imitating the light central wart-spots of the back, but not raised); across the hand several narrower bands. Legs: thigh with two bands; lower leg with two broader bands, with the same whitish spots as above mentioned; across the ankle and foot several narrower bands.

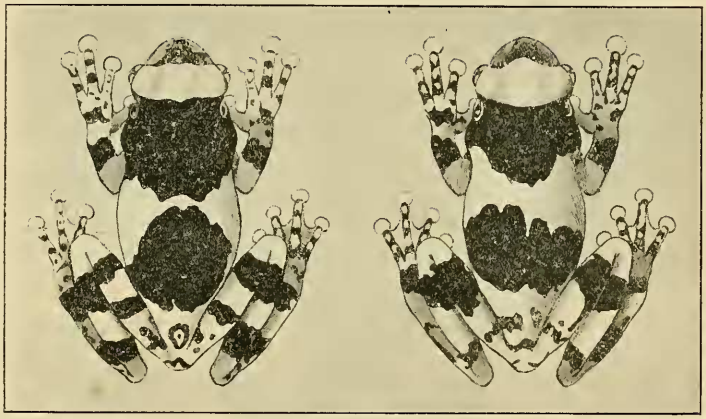
Forehead with some dark, roundish spots.

Upper border of mouth dark-marbled.

Ventral surface light greenish-yellow, granulated and turning warty about the chest. Upper-arm band on the anterior side with two or three light spots; some light yellow elongated spots at the anterior border of the vocal sacs. Border of lower lip as well as the finger-disks of a delicate green.

From a side view with the extremities folded, on the anterior extremity the dark bands on upper and lower arms appear to be continuous with the posterior border of the anterior large dark dorsal field; just as in the posterior extremity the dark bands nearest to the knee (femoro-tibial articulation) coincide with the posterior border of the second large dorsal field, while the bands nearest the heel (tibio-tarsal) coincide with the round sacral spot (text-fig. 57 A), the central spot forming with the lateral bands and dots a fan-like arrangement (confer also text-fig. 57 B).

Text-fig. 57.



A. B.

Hyla resinifictrix (diagrammatic).

Comparison of the four specimens available shows a considerable extent of individual variation in the details of ornamentation. However, it is easily seen that certain general features persist fairly well, the most salient among them certainly being the broad light transverse band on the head, running from one eye to the other.

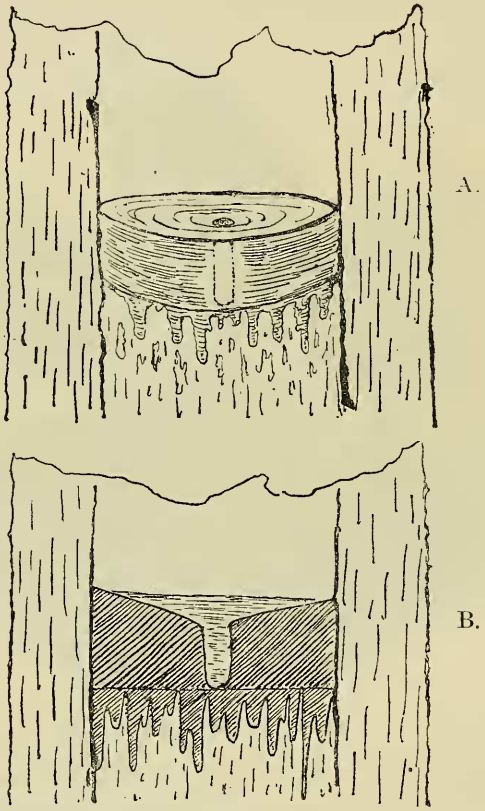
The iris is golden, with a horizontal and a vertical black bar, forming a cross*.

This large and strikingly coloured Tree-Frog presents a most curious novelty in its breeding-habits. Some years ago Mr. Boulenger, of the British Museum, published in an interesting

* As described in *H. venulosa* by Boulenger, Ann. & Mag. N. H. ser. 5, vol. x. p. 327 (1882).

article a tabular synopsis showing the different incubation-habits among the Batrachia. In this synopsis a unique position is held by the tree-frog *Hyla palmata*, which, according to observations made by me in the Serra dos Orgaõs (Rio de Janeiro), and published in the 'Proceedings' of the Zoological Society, 1895, forms breeding-bowls of the mud in shallow ponds.

Text-fig. 58.

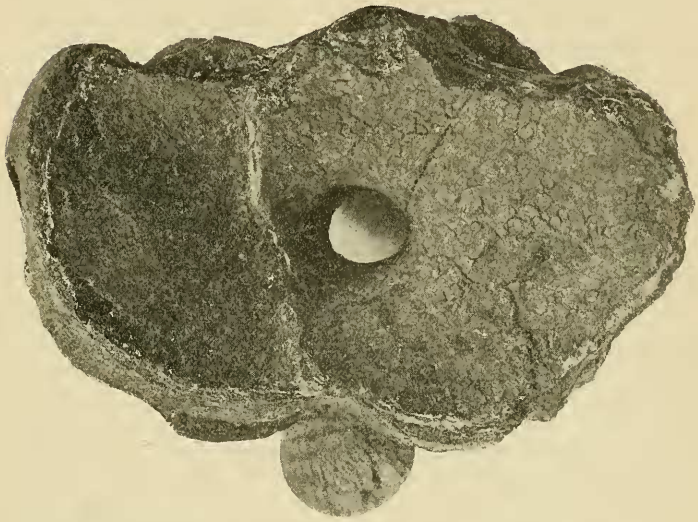


Breeding-basin of *Hyla resinifictrix*, (A) side view and (B) section (diagrammatic).

A still more peculiar eccentricity is presented by this beautiful new Amazonian tree-frog, *Hyla resinifictrix*. Inhabiting the virgin forest, it chooses certain tall trees for its dwelling, where it takes possession of a hollow branch (text-fig. 58, A and B), and constructs there as a nursery a good-sized basin of resinous substances, with a central depression (text-fig. 59). As is well known,

water and other liquids are preserved fresh in vessels varnished with pitch, and in like manner the rain-water which fills these resinous breeding-bowls presents excellent conditions for the hatching and development of the eggs and tadpoles, such as shade and freshness of water without contamination of decayed wood. Without having had as yet the good fortune to verify it by direct observation, I have abundant reason to suppose that the development stage of the tadpoles is exceedingly brief, analogous with the case of *Hyla goeldii* Boulenger in the Serra dos Orgaõs, *Hyla venulosa* in Pará, and others.

Text-fig. 59.



Breeding-basin of *Hyla resinifictrix*, seen from above (from a photograph).

One very interesting feature is the fact that this Amazonian tree-frog goes in search of the material with which to build the basin, and chooses for the purpose odorous resins which drop from the bark of certain trees, such as the aromatic "breo-branco" (*Protium heptaphyllum*) and others.

Although the resin of the "cunnuarú" is well-known to the Indians and mixed races in the Amazonian valley, constituting a commodity much sought for and of high price, the tree-frog itself was entirely unknown to all except the genuine forest-dwelling Indians. In spite of strenuous efforts it took me more than ten years to get on the track of this most mysterious Batrachian, and if finally my efforts were crowned with success, it was largely due to the friendly aid of the Tembé Indians at the Mission of Santo Antonio do Prata, at the River Maracanã (interior of the State of Pará), by the kind interest of Frei Daniel de

Samarate, Director of the Mission. With their help I succeeded in obtaining several individuals, one of which (♂) at least is still alive after spending nearly two years in a terrarium properly fitted up for it. Last year it gave me frequent opportunities to hear its voice, which is surprisingly strong, and sounds as "queng-queng" three or four times repeated.

The local name "cunnuarú," evidently onomatopœic, is formed by contraction of two Indian words "cunhã = wife" and "arú = toad"; the Indians say that this tree-frog always calls for the female when the moon shines.

5. The Duke of Bedford's Zoological Exploration in Eastern Asia.—III. On Mammals obtained by Mr. M. P. Anderson in the Philippine Islands. By Oldfield Thomas, F.R.S., F.Z.S.*

[Received February 5, 1907.]

In the early part of last year, after making the Korean Collection described in a previous volume of our Proceedings †, Mr. Malcolm Anderson paid a short visit to the Philippines, but was unfortunately attacked by fever, and after a gallant attempt to fulfil the object of his trip, was compelled to return to more northern and healthier latitudes.

The chief object of Mr. Anderson's visit to the Philippines was to obtain series of the interesting mammals discovered in Mindanao by Dr. E. A. Mearns ‡, as the mountain fauna of this island was only represented in our National Museum by the duplicates from Dr. Mearns's collection which the authorities of the United States National Museum had been good enough to send us. But these of course did not include any of the various new genera and species which had been described by Dr. Mearns on single specimens or on small series, and we therefore hoped that Mr. Anderson might be able to obtain some of them for us.

Owing to Mr. Anderson's illness the collection is quite small, only consisting of 16 specimens belonging to 6 species, but one of these proves to be new, while all are of interest as filling up gaps in our series.

1. Urogale cylindrura Mearns.

♂. 756, 763. ♀. 753, 761, 762. Mount Apo, Mindanao, 3000′–4000′.

I am very doubtful if this form is at most more than a local subspecies of *U. everetti* §, described from Zamboanga. The type of the latter had been skinned after preservation in spirit, and such slight colour differences as there are may be due to this cause.

* [The complete account of the new species described in this communication appears here; but since the name and preliminary diagnosis were published in the 'Abstract,' the species is distinguished by the name being underlined.—Editor.]

† P. Z. S. 1906, p. 858.

‡ See Mearns, P. U.S. Nat. Mus. xxviii. p. 425, 1905.

§ *Tupaia everetti* Thos. Ann. Mag. N. H. ser. 6, ix. p. 250, 1892.